226 [278] The second and equally important method was by poisoning the waters of lakes and medium sized streams with timbó (Paullinea pinnata), a fish poison used throughout the Amazon. The timbó paralyses the gills of the fish, thus suffocating it. The fish remains edible as timbó does not poison the fish internally. The poison is contained in the long roots of a plant which grows wild in the forest but [249] which is commonly cultivated by the Indians in their gardens.

When a timbó expedition was organized, all of the men who participated went to the gardens to pull up the roots of the plant. These were chopped into one foot pieces, wrapped in a bundle, and brought back to the village. Before dawn of the next day, or the afternoon before, if the chosen fishing site was distant, the party embarked. The best places to fish with timbó were in restricted bodies of water where the poison would have greatest density and the fish the least possibility of escape. For this reason, streams and inter-island channels of about fifty feet in width or lagoons of limited size having only one entrance were preferred. Upon arriving at the location early in the morning, the party broke up into two, three, or possibly four groups, depending on the number of people involved. Those men who were to poison the water went upstream while the rest of the men and the accompanying women and children waited for the stunned fish to swim downstream. The poisoners then placed their bundles of timbó on a rock or log in the water and began to beat them with a heavy stick, causing the white

12:Murphy E-5 (1952-1953) 1960
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648 which, ironically, is what the townsman calls the backwoodsman. The Brazilian residents in the upper Tapajós are scattered along its banks and the lower sections of its larger tributaries as far south as 9° S lat. on the Juruena and São Manoel rivers. Beyond this point the country is inhabited by the Nambikuára, Tapayuna, and Tupí-Cawahíb Indians, who are all hostile to the whites and effectively prevent further penetration. The Gê-speaking Northern Kayapó Indians, who live to the east of the Mundurucú, have raided the upper Tapajós in recent years, and at the time of our visit fear had induced all inhabitants of the east bank of the river between the Tropas and Jamaxím rivers to move to safer areas.

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249 The local Brazilians have an enormous fear of hostile Indians. This is especially true of recent immigrants to the Amazon, and it is reinforced by a general feeling of insecurity in the jungle environment. The natives of the States of Ceará and Piauí who have been attracted to the area through aspirations of wealth in rubber, are frequently heard to remark that "life here is a sacrifice"; or "it is better to starve in town where there is movement and people than in this desolation." Inhabitants born in the area are, of course, accustomed to it, but they recognize their own poverty and the despair of their condition. Life in the jungle is difficult; the people are poor and often hungry and deprived of the barest necessities of life. Rubber, the basic export of the area, once offered rich returns to collectors, and especially to traders, but the latex of
[439] the wild *Hevea* is now submarginal on the world market; the population engaged in its extraction has correspondingly experienced a forty-year period of depression.

648 The governments of Brazil and of the State of Pará are remote from the region. On rare occasions, one or two policemen from the town of Itaituba, the seat of the mu-

12: Murphy E-5 (1952-1953) 1960
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1869, 100; 1895, 50.[18] The remaining fifty had already lost their identity as Mundurucú or as Indians. Hartt likewise reported in 1885 that "the Mundurucú of the Tapajós, below the rapids, are now all civilized and so mixed with the general population that their nationality has in great part been lost."[19]

On the Madeira waters, much the same process ran its course. In 1865, Louis Agassiz, the naturalist, and his wife traveled on the Paraná-Mirím and the lower part of the Maué-Assú River. On the latter stream they found a Mundurucú village consisting of two parallel rows of houses with a Catholic church at one end of an open square.[20] At the time of their visit the population was scattered in the forest where they were working in their gardens and collecting forest products. The full population gathered only three or four times a year for festivals. Only a few Indians spoke Portuguese, according to Mrs. Agassiz,[21] although there were undoubtedly more bilinguals who preferred not to disclose the fact. Most of the people lacked the characteristic Mundurucú tattooing, and all wore clothes. William Chandless, an English explorer who visited the region only a few years later, reported that the Mundurucú "are civilized, and live in families not as in tribal life."[22] They were primarily engaged in the planting of tobacco and the collection of *guaraná*, sarsaparilla, and *copaiba* oil. The movement of people from the savannahs of the Tapajós to the upper Secundurý River was apparently still continuing, for in 1870 Chandless reported "The Indians of the Rio de Canumá, as far as I went, are much like those on the Maué-assú: higher up the tattooed sons

[18] Coudreau, 1897, p. 8.
[19] Hartt, 1885, p. 117.
[20] Agassiz, 1869, p. 308.
[21] *Ibid.*, p. 312.
[22] Chandless, 1870, p. 424.

/3 cont./

*241

> etwas Baumwolle und viel Mandioca-Wurzel, deren Mehl, in Koerbe und breite Blaetter von Palmen ... verpackt, sie an die Schiffer im Tapajóz zu verhandeln pflegen, seitdem sie in friedlichen Verkehr getreten sind...."

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(I should like to insert here the following question: Did Martius have knowledge of traditions regarding a preagricultural era of the Mundurukú? It would seem so, for he writes in the above-quoted passage: "... the somewhat dense population can no longer depend exclusively on hunting and fishing"; this might indicate knowledge of a previous stage of the Mundurukú as hunters and gatherers but not as agriculturalists.)

*241 Still more or less in the same period, we have the testimony of Bates who speaks of the Mundurukú as agriculturalists and good workmen in various parts of his book, though he does so rather offhandedly; he notes the fertility of the land and the relatively small effort required of the Indian to bring forth the necessities /4/ of life; he tells of the large gardens of the Mundurukú which he saw on the Cuparí River and of how the women make flour; he says that the [439] Mundurukú carry out a certain amount of flour trading with the traders [244] of the Tapajós, and finally he states that aside from bitter-manioc [249] roots they raise sweet manioc, sweet potatoes, and sugar cane. (5)

5. Bates, 1944. passim.

114 There are practically no twentieth-century sources on the Mundurukú. The Franciscan mission has not yet published its materials on these Indians, and the work of Robert Murphy, who also studied this tribe in 1952-53, aside from a few articles, has not reached us. Thus, our knowledge is based almost exclusively on the meager data of the above-mentioned authors. Only Gonçalves

/1 cont./

242 this estimate. Through repeated tests he finds out the type of the soil and draws the necessary conclusions. As a rule, he proceeds as follows: with the machete, he digs a hole and examines the soil. [823] By crumbling it between his fingers, he finds out its quality by touch. He distinguishes three types: sandy, clayey, and black, allowing for certain variants and intermediary types, according to the composition and percentage of clay or sand. He makes these soil tests at various depths and in various places when he suspects that only a thin layer is involved, or to find out how far /the layer/ extends. The type of garden also depends on the type of the soil; in other terms: depending on what he wishes to plant, he has to choose a /specific/ type of soil. For this reason, in his hunting forays through the forest, the Indian pays attention to the ground through which he passes in order to find out where he will find appropriate soil when he needs it. The following rule applies as a general norm:

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sandy soil:	good only for bitter manioc; inadequate for other plants.
clayey soil:	good especially for bitter manioc, tubercles in general, and also for banana plantations; other plants do not grow well in this soil.
black soil:	good for everything. For this reason, black soil is always sought out and preferred. This is the tobacco ground par excellence.

[845]

•[849]

*241 2. Size and shape of the plot. As was already partly explained, [842] the size of the plot depends on the quality of the soil. If /the Indian/ finds the chosen soil somewhat weak, he figures out beforehand that the harvest will be less satisfactory, and makes the plot somewhat larger. From the practice he has acquired since youth, he empirically figures out the area that will be needed. To do this he does not use measurements, as our peasants do ("braças," "varas," and such). [804] I attempted in various ways to find out how the Munduruku figures out the size of the plot he is about to prepare. The answers were always the same: "... just by looking, you already know ..." /8/ or "... just by looking...." If the family has grown through the years,

/15 cont./

*241 Also:

192 pepper—achi, achi a, four varieties
262 banana—aku, 11 varieties
cotton—buru, two varieties
urucú—tyuku, tyuku a
papaya—asãu a, two varieties

*241 There is, therefore, a small group of plants which are found in the gardens as well as out: pepper, bananas, cotton, urucú, and papayas.

• [249] For certain plant species, such as for example tobacco and the curauá pineapple, a plot of ground is often set aside, or a small garden is prepared separately.

249 Aside from these plants, which are useful to subsistence, the Mundurukú also have a certain number of vegetables which back-
[302] woodsmen call "smell" and which they use when they are bathing, to give their body, and especially their hair, a more pleasant odor.
[157] A few herbs are also cultivated for medicinal purposes. Others yet
[189] are used in the practice of certain superstitions and charms. Although I am aware that these subjects are not directly related to agriculture, I mention them in passing since "cultivated plants" are involved.

*241 From this list, it becomes clear that the Mundurukú must have
177 had considerable contact with civilization and with other tribes to have acquired such a number of useful plants. As for the ancient stock of plants cultivated by the Indians in the Amazon forest, tubercles must be mentioned first and foremost. Moreover, /16/ it seems that the use of some of these typically native plants, such as for example curauá pineapple or sweet manioc, is not very old, for a series of tribes possessing a type of agriculture quite similar to that of the Mundurukú are not yet familiar with the cultivation of sweet manioc or curauá pineapple. (9)

[171] 9. Thus, for instance, the majority of the Carib tribes of the Brazilian Guianas are unfamiliar with the cultivation